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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,812

Applicant(s)

ARRIGOTTI ET AL.

Examiner

Ishwar (I. B.) Patel

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 21-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-20 and 25-28, drawn to an apparatus comprising printed circuit board and a component, classified in class 174, subclass 260.
 - II. Claims 21-24, drawn to a method of securing a component by use of anchoring mechanism, classified in class 29, subclass 832.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions group II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as the product can be made by other than the wave soldering method. Further, the product can be made without the steps of compressing a solder retention section, inserting through the through hole and enlarging the said solder retention section. The solder retention section can be joined after inserting the anchor in the through hole.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with David C. Oren (Reg. 38,694) on January 7, 2003, a provisional election was made with traverse to prosecute the invention of an apparatus comprising printed circuit board and a component, claims 1-20 and 25-28. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to because the figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross hatched. The cross hatching patterns should be selected from those shown on page 600-81 of the

MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. Figures 1, 2 and 3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-20 and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saneinejad et al., US Patent No. 5,734,556, hereafter, Saneinejad, in view of Chung, US Patent 5,881,800, Garay, US Patent No. 5,115,375.

Regarding claims 1 and 17, Saneinejad discloses an apparatus comprising:

a printed circuit board having a first face and a second face (printed circuit board 14, see figure 1, column 1, line 60-67);

a component to mount on said first face (IC package 12 along with heat sink 24, see figure 1, column 1, line 60-67); and

a mechanism to secure said component to said printed circuit board, said mechanism comprising a clamping apparatus to couple said component and a through hole mount anchor to couple to said printed circuit board, said clamping apparatus to couple to said anchor so as to secure said component to said printed circuit board, said anchor including a loop section to extend from said first face of said printed circuit board, and a first leg to extend through a first through hole of said printed circuit board, and extend from said second face (pin headers 30 and clip 30, pin header 30 with wire loop 44 and wire posts 42, see figure 1 and 2, column 2, line 20-67), except

said first leg including a compressible section to compress when inserted into said first hole and to expand after passing through said first hole, said compressible section to support solder between said compressible section and said second face. However, the legs with such compressible ends are know in the art for having positive locking mechanism to avoid separation of the component from the board and further such additional area will apparently help in retaining more solder, in case of solder

joined legs, for additional strength. Chung discloses one such fastener which will expand upon passing through hole of the printed circuit board, see Chung figure 2 and 3, without the use of solder and Garay discloses one such retained with solder connection, see Garay, figure 8. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Saneinejad with said first leg including a compressible section to compress when inserted into said first hole and to expand after passing through said first hole, said compressible section to support solder between said compressible section and said second face apparently in order to have enough strength to avoid separation of the component from the printed circuit board.

Regarding claim 10 and 11, the modified assembly of Saneinejad discloses all the features of the claimed invention including an arm to couple to said component as applied to claim 1 above.

Regarding claims 2 and 18 the modified assembly of Saneinejad further discloses the second leg, Saneinejad figure 2, with the modification as applied to claim 1 above.

Regarding claim 25, the modified assembly of Saneinejad discloses all the features of the claimed invention including the first and second leg extending from the loop as applied to claims 1 and 2 above.

Regarding claims 3, 12, 19 and 27 the modified assembly of Saneinejad further discloses the said compressible section comprise cone-shaped barbs provided on an end of said first leg, Saneinejad figure 2 with modification as applied to claim 1 above.

Regarding claims 4, 13 and 20 the modified assembly of Saneinejad further discloses compressible section expands to a distance greater than a diameter of said first hole, see Garay figure 8.

Regarding claim 5, 6, 14 and 15 the applicant is claiming how the compressible section is formed on the leg, either integrally formed or separate portion of the first leg. However, both such forms are known in the art and can be used depending upon the specific requirement. The retainer of Garay is integrally formed, while that of Chung will be better to be formed separately. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the assembly of Saneinejad with the compressible section formed on the leg, either integrally formed or separate in order to have cost effective retaining device depending upon the specific situation.

Regarding claim 7, though Saneinejad does not explicitly discloses the material used for the mechanism; use of metal is known in the art for better mechanical strength and better workability. Therefore, it would have been obvious to one having ordinary

skill in the art at the time the invention was made to provide the modified assembly of Saneinejad with the mechanism made of metal in order to have better mechanical strength.

Regarding claims 8, 16, 27 and 28 the modified assembly of Saneinejad further discloses the compressible section extends below said second face with solder between said compressible section as applied to claim 1 above.

Regarding claim 9, the modified assembly of Saneinejad further discloses the plated through hole walls, see Saneinejad, column 2, line 42-50.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hwang discloses U-shaped metal member for securing a circuit component.

Lober et al., discloses an assembly with clip and anchors.

Lee et al., discloses a heat sink mounting mechanism with arm and fastener.

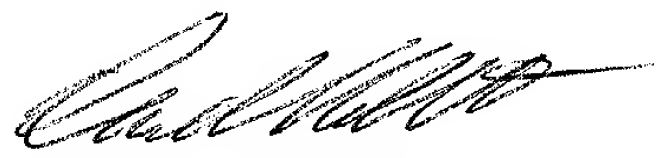
Butterbaugh et al., Liu, Seo, Matteson and Lee disclose heat sing mounting mechanism with arm and pin with compressible / expandable ends.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (703) 305 2617. The examiner can normally be reached on M-F (6:30 - 4) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (703) 305 9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3431 for regular communications and (703) 305 7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

lbp
January 12, 2003


DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
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